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NORTH CAROLINA'S FERTILITY: RECENT TRENDS AND THEIR IMPLICATIONS

by

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ABSTRACT

In North Carolina, as in the U.S. and many other developed countries, birth rates have fallen steadily over the past several decades. In recent years, however, both the birth rate and the induced abortion rate of older women have risen, and first-time births among women 30 and older have risen sharply. While the state's older first-time mothers generally appear a rather select group in terms of their education and prenatal care levels, infants born of those women are shown to be at excess risk of prematurity, newborn morbidity, and perinatal mortality.

At the opposite end of the age spectrum, teenage pregnancy continues to be a problem in both North Carolina and the nation as a whole. During 1981, state and national teenage pregnancy rates far exceeded those in most other industrialized countries.

Meanwhile, the fertility and abortion measures examined in this report are found to involve some statistically significant intercorrelations. Of particular interest are findings of reduced abortion utilization corresponding to increased fertility during 1982.

Finally, in the nation and even more rapidly in North Carolina, birth rates have declined to well below replacement level, the state's rate being 24 percent below replacement in 1984. Although these declines may bode well for public family planning programs and other fertility control measures, the implications of continuing subreplacement fertility are not so favorable. Over time, if this trend continues, the labor force will shrink as the elderly population grows, thus increasing state and national dependency ratios to untenable levels.

INTRODUCTION

Except in an occasional year, North Carolina's birth rate has fallen steadily since about 1954, reaching U.S. levels during the mid-seventies and falling below U.S. levels in 1978. That year marked a full decade of federally-subsidized family planning services and a half decade of legally induced abortion in North Carolina. Those factors, combined with such social factors as postponement of marriage, delayed childbearing, and the changing roles of women, have contributed to the general decline in fertility and, one would hope, to a substantial decline in unwanted fertility.

Since 1978, the fertility of North Carolina white women has fluctuated for an overall decline of only one percent. The rate for nonwhite women, on the other hand, has declined in each year except 1982 for an overall reduction of 14 percent. In contrast to those general trends, however, the rates of older white women have increased while those of older nonwhite women have fluctuated.

This report examines age-race-specific trends in both fertility and legal abortion. The year 1978 is used as the base since, due to increased voluntary reporting of detailed information, the reliability of abortion estimates for population subgroups improved substantially at that time. Presently, providers are reporting detailed information for an estimated 97-99 percent of all abortions performed, and the Alan Guttmacher Institute has consistently found North Carolina to have one of the most complete state reporting systems in the nation.

As a by-product of this study's intended analyses, problems that may be associated with delayed and limited childbearing are also examined and discussed in this report.

DEFINITIONS

ABORTION: The purposeful interruption of pregnancy with the intention other than to produce a liveborn infant or to remove a dead fetus and which does not result in a live birth. Spontaneous abortions are not reportable in North Carolina.

FERTILITY: Relates live births to the female population exposed to the risk of giving birth.

UNMARRIED: Includes women who had never been married or who were widowed or legally divorced at the time of an abortion procedure or more than 280 days prior to a birth.

FORMULAS*

In the formulas given below, abortion counts include only *resident* events *occurring in North Carolina*, and both the numerator and denominator may be race-specific. In Table 5, the abortion fraction is also specific for marital status. Other information concerning numerators, denominators, and sources of error are found in the Appendix.

Fertility Rate:	Number of resident live births in age group	X 1,000
	Number of females in age group	
Abortion Rate:	Number of legal abortions in age group	X 1,000
	Number of females in age group	
Abortion Fraction:	Number of legal abortions in age group	X 1,000
	Number of resident pregnancies (live births plus fetal deaths plus abortions) in age group	

* The formulas are standard measurements found in various national publications as well as textbooks on epidemiology and biostatistics.

FERTILITY RATES, ABORTION RATES, AND ABORTION FRACTIONS

Between 1978 and 1984, the number of live births to North Carolina residents increased 4.3 percent to 85,986 while the number of in-state resident abortions rose 30.7 percent to 32,772. In total, the state's fertility rate declined about 5%, 1.3% for whites versus 14.1% for nonwhites, while the abortion rate and fraction both rose—the rate by 17% among whites versus 21% among nonwhites and the fraction by 14% among whites versus 28% among nonwhites. Table 1 shows these rates and fractions for each of the years 1978-1984. As a matter for later discussion, the reader will note that, for both races, reductions in abortion rates during 1981-82 correspond to reduced abortion fractions and increased fertility rates in 1982.

Specific for race, Figures 1 and 2 depict 1978-1984 trends in the above measures while Tables 2-4 allow for the examination of recent trends in age-race detail. These data suggest the following major changes between 1978 and 1984:

- The *fertility rate* of white women 30-34 rose 21% while that of white women 35-44 rose 28%. For those groups, rates were significantly higher in 1984 than at any other time during the 1978-84 period. Among nonwhite women 30-34, the rate increased 9% between 1978 and 1982, then declined in 1983 and 1984. The rate for nonwhite women 35-44 fluctuated. For white women under age 25 and nonwhite women under age 30, declines in fertility have been substantial with net reductions of more than 17% at ages 15-17 and about 8 percent at ages 18-19. As a result of these changes, differences in white and nonwhite fertility have been reduced (Figure 1). The reader will also note that all age-race groups except nonwhites 15-17 experienced increased fertility during 1982.
- Except among nonwhites 35-44, the *abortion rate* has risen in all age-race groups with nonwhites under 30 and whites 15-17 and 25+ experiencing record-high rates in 1984. However, all age-race groups except older whites experienced reduced rates during 1981-82.
- In general, the *abortion fraction* rose in 1983 following declines during 1981-82; nonwhites under age 30 and whites 15-17 and 20-34 experienced record-high fractions in 1983 and 1984. As a result of these various changes, the gap between the white fraction and the higher nonwhite fraction has widened (Figure 2).

Consistent with findings from Table 1, the reader will note that most age-race groups experienced reduced abortion rates and fractions during 1981-82 and increased fertility rates in 1982. This suggests an inverse relationship between fertility and abortion utilization, and indeed, correlating fertility rates and abortion rates for the period 1978-1984, Pearson's *r* is negative and statistically significant for both whites and nonwhites at ages 15-17 and 18-19 and for nonwhites at ages 20-24. Below age 25 for whites and age 30 for nonwhites, the abortion fraction and the fertility rate are also negatively and significantly correlated. However, at ages 25-29 and beyond for whites and ages 30-34 and beyond for nonwhites, the fertility rate and the abortion rate are positively correlated, the correlations for whites 30-34 and 35-44 being statistically significant. These findings imply that, at younger ages,

changes in fertility largely relate to changes in abortion use whereas, at older ages, changes in fertility relate to changes in conception.

The data for older white women represent a particularly interesting phenomenon in that their fertility and abortion rates both rose substantially during the 1978-84 period. Reasons for this apparent increase in *conception* are unknown, but some contributing factors may be:

- Enhanced fecundity due to better health among today's parenting population.
- Postponement of marriage and other choices resulting in delayed childbearing.
- Increased levels of sexual activity resulting in greater exposure to the risk of conception.
- Use of less effective methods of birth control due to perceived risk and cost problems associated with "the pill."
- Repeated episodes of abortion or fertility by individual women.

Due to the lack of population estimates by marital status, fertility rates for married versus unmarried women are not available for North Carolina. Nationwide, however, unmarried whites have experienced rising fertility since the mid-seventies, to a record-high rate of 18.8 in 1982 (latest year available). That rise has involved all age groups including teenagers to a substantial extent; between 1978 and 1982, the U.S. rate for unmarried white women 15-19 rose an estimated 30 percent. (1)

The nation's unmarried nonwhites 25 and older have also experienced rising fertility although rates declined slightly in 1982 (except at ages 35-39). Meanwhile, fertility among unmarried nonwhite teenagers has recently declined. (1)

One factor that may be involved in rising unmarried fertility is that of a declining propensity to marry prior to the birth of a premaritally conceived child. A trend in that direction has been demonstrated nationwide. (2)

In terms of numbers, live births to unmarried North Carolinians have risen 22 percent since 1978, including 5.5 percent between 1983 and 1984, to a total of 18,190. By race-marital group, the 1978-1984 percent changes in live births were: +4.5% for married whites, -13.2% for married nonwhites, +49.9% for unmarried whites, +14.4% for unmarried nonwhites. The large increase among unmarried whites is highly suggestive that the *rate* of childbearing by those women has increased.

FIGURE 1
FERTILITY AND ABORTION
RATES BY RACE
1978 - 1984

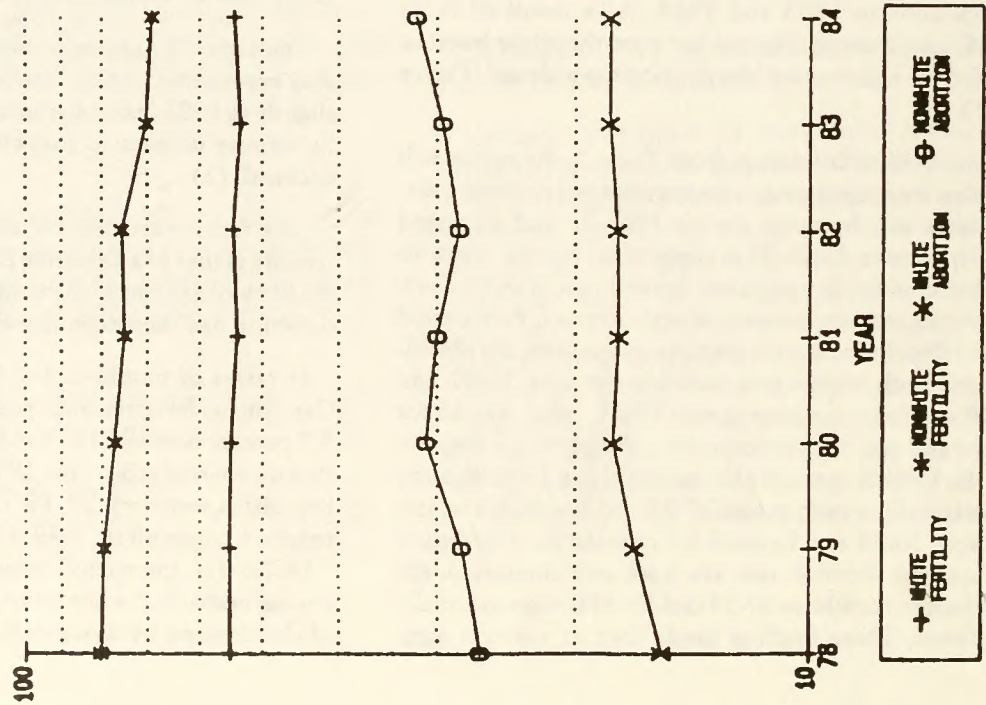
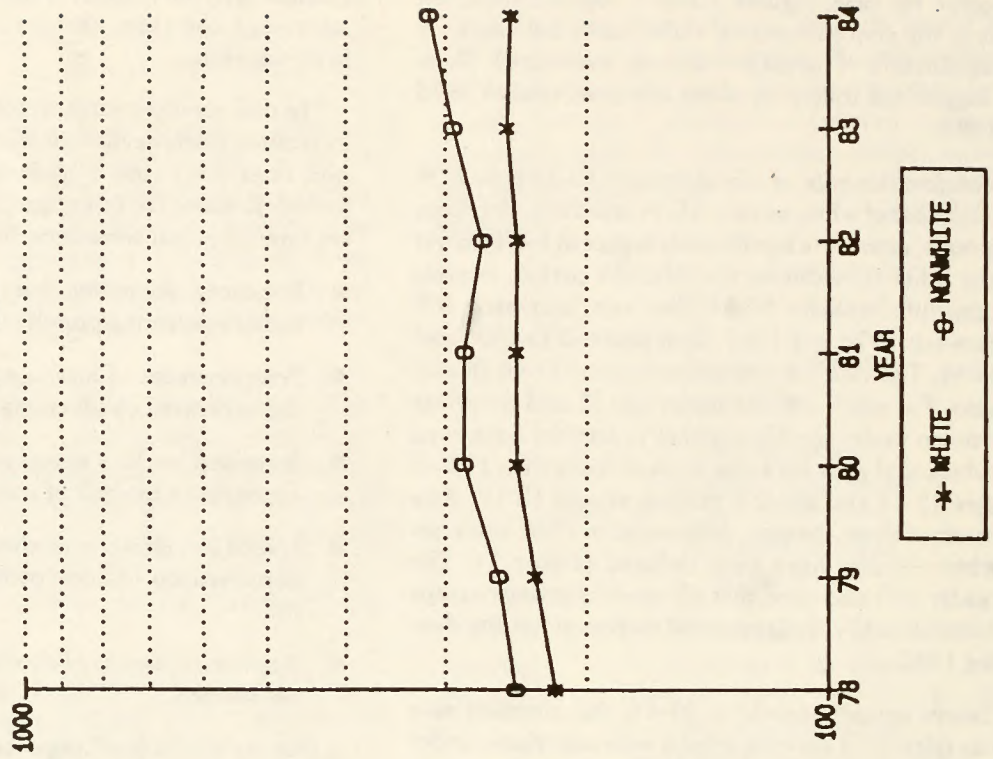


FIGURE 2
ABORTION FRACTIONS BY
RACE, NORTH CAROLINA
1978 - 1984



In total (all age-race-marital groups), North Carolina's fertility rate was 11 percent lower than the nation's and seventh lowest among the states in 1982. According to estimates by the Alan Guttmacher Institute, the state's 1982 abortion rate and abortion ratio (abortions per 1,000 live births plus abortions) were also below the nation's, by 20.1 and 6.7 percent respectively. During 1982, state and national declines in the abortion rate were comparable while reduction in the state's abortion ratio (1.8%) far exceeded that for the U.S. (0.3%). The latter is due to the fact that, in contrast to an increase in North Carolina, the nation's fertility rate was about the same in 1982 as in 1981. (1,4)

Abortion Fractions in Marital Detail

Table 5 displays abortion fractions for age-race-marital groups. In general, the proportion of pregnancies resulting in abortion rose in 1983 following reductions in 1981 and 1982. For nonwhites, the increase continued in 1984 with the fractions for married nonwhites under age 30 and unmarried nonwhites under age 20 reaching record-high levels. In contrast, the fractions for nonwhites 30 and older peaked earlier in the 1978-84 period with the fractions for older and married nonwhites declining in each year 1981-1983.

Among married whites of all ages, 1984 fractions were lower than in earlier years; at ages 30-34 and 35-44, 1984 fractions were below those in 1978 by 13 and 32 percent respectively. In contrast, the fractions for older unmarried whites rose in each year 1981-1983.

In summary, the data of Table 5 reveal that the choosing of abortion over childbearing has increased markedly among married nonwhites under age 30 and unmarried nonwhite teenagers while declining among older married women of both races, especially whites. That all four race-marital groups experienced reduced abortion fractions during 1981-82 (especially 1982) is also notable.

Teenage Pregnancy

In the preceeding sections, the following state and national changes in teenage pregnancy were noted:

North Carolina

- For both races, 1978-1984 reductions in fertility rates were more than 17 percent at ages 15-17 and about 8 percent at ages 18-19.
- Nonwhites 15-19 and whites 15-17 experienced record-high abortion rates and fractions in 1983 and 1984.

- For both whites and nonwhites over the 1978-84 period, correlations between fertility rates and the abortion rates and fractions of women 15-17 and 18-19 were negative and statistically significant.
- Recent changes in abortion fractions have involved increases among both married and unmarried non-white teenagers.

United States

- Between 1978 and 1982, the U.S. fertility rate for unmarried white women 15-19 rose an estimated 30 percent (1).
- Fertility among unmarried nonwhite teenagers has declined (1).

The following teenage fertility rates were observed during 1982:

		North Carolina	United States (1)
Whites	15-17	25.7	25.2
	18-19	68.8	70.8
Nonwhites	15-17	63.5	65.6
	18-19	121.4	128.2

While these rates are at least average to favorable for North Carolina, those involved in reducing teenage pregnancy in the state must not be complacent; a recent study by the Alan Guttmacher Institute (AGI) reveals that U.S. teenagers become pregnant, give birth, and have abortions at significantly higher rates than do adolescents in other industrialized countries; moreover, America is the only developed country in which teenage pregnancy is on the rise (5).

The following pregnancy rates, defined here as abortions plus live births per 1,000 females, were observed during 1981:

	15-19	15-17	18-19
N.C. Total†	90	62	130
Whites†	76	48	113
U.S. Total*	96	62	144
Whites*	83	51	129
England and Wales*	45	27	75
France*	43	19	79
Canada*	44	28	68
Sweden*	35	20	59
Netherlands*	14	7	25

† Based on N.C. resident live births and N.C. resident-occurrence abortions. If out-of-state abortions to N.C. residents were available and included here, the N.C. rates would be higher.

* Rates taken from reference 5.

The reader will note that, even for whites alone, the N.C. and U.S. rates are at least two-thirds higher than those of England and Wales and 4 to 5 times higher than those of the Netherlands. The contrasts are even more striking at younger ages. Although initiation of sexual activity may begin slightly earlier in the U.S. than in the other countries (except Sweden), the AGI found overall levels of adolescent sexual activity to be about the same in the U.S. as in countries with much lower teenage pregnancy rates (5).

DELAYED CHILDBEARING

Of those American women who will eventually be mothers, the proportion waiting to have their first child until they are 25-34 years old has increased from one in four among women born in 1936 to one in three among women born in 1955. According to analysts examining the "demographics of delay," educational level is the most important variable affecting the age at which a woman begins childbearing; that is, when education is held constant, other associated factors such as economic status lose their significance. (6)

As a result of delayed childbearing, first-birth rates among U.S. women in their thirties have risen since 1972. Between 1981 and 1982, the trend intensified as the first-birth rate increased by 10 percent for women 30-34 and by 18 percent for women 35-39. Alternatively, the first-birth rate for younger women continued to decline. (1)

In North Carolina, the tendency to begin childbearing at later ages is likewise indicated by large increases in the rate of first births among older women. While the overall first-birth rate dropped nearly 4 percent between 1978 and 1984, the rate for women 30 and older rose 61 percent—67 percent for whites and 43 percent for non-whites. In contrast to the general trend, older white women also experienced some increase (11 percent) in the rate of nonfirst births. The *number* of first births to women 30 and older has also risen sharply—92 percent for each race. These data are presented in Table 6.

Among all North Carolina women who gave birth in 1984, 64 percent were white and married. But among women 25 and older who had their first birth, a decidedly larger proportion, 82%, were white and married. Regardless of race, the educational advantage of the older first-time mother is also apparent; she is more likely than either her younger counterpart or the nonfirst-birth mother her same age to have had some college and far more likely to have had 4 or more years of college. These findings for educational level are depicted by the percentages of Table 7.

As expected from the above, older first-time mothers of both races were less likely than others to have had inadequate prenatal care, as shown in Table 8. Hence, in 1984, North Carolina's older first-birth mothers would seem a fairly select group of women; regardless of race, they were more likely than others to have had a college education and less likely than others to have had inadequate prenatal care. NEVERTHELESS, as shown in Tables 9 and 10, older first-birth mothers of both races were more likely than nonfirst-birth mothers their same age to have infants of low weight (1500-2499 gms. and under 2500 gms.) and low 5-minute Apgar scores (4-7 and 7 or less). For whites some of these differences are statistically significant. By comparison, the reader will note that differences between first- and nonfirst-birth mothers under age 25 were often in the opposite direction, e.g., proportionately more low weights among nonfirst births than among first births.

Similarly, in the U.S. in 1980 (latest year detail is available), the percentage of low-weight births increased at each successive level of mother's age beyond 25-29 years and at each of those ages, prematurity was disproportionately high among mothers having their first live birth (7). At the same time, a study of nationwide trends in first births to older mothers revealed an above-average but *declining* incidence of low birthweight among those infants (8).

Obviously, knowledge of the above patterns could affect a woman's fertility timetable. Not only does the woman who delays childbearing face increased risk of infertility, but her firstborn appears at increased risk of low weight and associated morbidity. Many questions now ensue, for example: In late first-time fertility, how big a factor is unintentional delay due to temporary infertility, the causes of which may contribute to prematurity? What other factors, physiological and otherwise, could account for the observed infant weight differences between first and nonfirst births to older mothers? Are working conditions, alcohol use, cigarette smoking, and dietary habits contributing factors? Is father's age a factor? If the trend to delay childbearing continues, answers to these and other questions must be sought. In the meantime, we have investigated a major question answerable by available North Carolina data:

- In late first-time fertility, does the increased incidence of low weight translate into higher infant mortality?

Table 11 shows five-year fetal and neonatal death rates for first and nonfirst births by race and mother's age. Except as noted in a table footnote, each rate is based on a minimum of 40 deaths.

Consistent with levels of prematurity, the rates of Table 11 are in the direction of greater fetal and nonwhite neonatal mortality among first-birth mothers 30 and older than among their nonfirst-birth counterparts. At the same time, it is seen that **both** first and nonfirst births among older mothers, especially nonwhites, involve greater fetal and neonatal mortality than do births to mothers 18-29, and some of those differences are statistically significant. On the other hand, infants born to older mothers do not appear at excess risk of postneonatal mortality.

Just as the above findings are a concern, so are recent increases in North Carolina's nonwhite neonatal mortality. An investigation of those increases reveals higher mortality in 1982 than in either 1980 or 1981 among term-weight nonwhite babies, especially those born to older mothers, first-time mothers and unmarried mothers.

EXPECTED FERTILITY

In 1983, the estimated lifetime birth expectation of American women 18-34 was 2.1 per woman, slightly lower than 2.2 in 1976. An estimated 10.6 percent of women expected no lifetime births. In North Carolina in 1984, women 18-34 expected 1.9 lifetime births with 9.2 percent expecting none. In 1980, 8.8 percent expected no lifetime births. (3,9,10)

Citing "stability in expected lifetime births" as a major feature of American fertility in recent years, researchers on the national scene suggest that no major changes in completed fertility should be anticipated in the next few years (2). At the same time, other observers of the nation's fertility (1) note that women appear to be delaying childbirth longer now than formerly and that "continued delay of motherhood by these women may reduce the number of children they ultimately have and may result in a greater level of unintended childlessness."

Meanwhile, data from state and national surveys in 1980 (9) and 1979 (11) respectively suggest that the proportion of white women 18-34 who have already completed their expected fertility is higher in North Carolina (60%) than in the U.S. (50%) or the South (53%). In contrast, 53 percent of nonwhite women in North Carolina, versus approximately 60 percent of black women in the U.S. and the South, expected no more births. (Note: N.C. nonwhites may be compared to U.S. blacks because blacks account for a preponderance of the state's nonwhite population.)

REPLACEMENT FERTILITY

In this discussion, the "total fertility rate" is a hypothetical measure that shows the implications of current fertility for completed family size. It assumes that a group of 1,000 women will experience throughout their childbearing years the set of age-specific fertility rates observed in a given year and is calculated as five times the sum of the rates for 5-year age groups. Replacement level is the total fertility rate necessary for a given generation to exactly replace itself; it is estimated at 2,110 births per 1,000 women or 2.11 per woman (2). It is higher than exactly one child for each parent because not all children born will survive to their reproductive years.

Although the U.S. population continues to grow, the nation's total fertility rate has been below replacement level since 1972, being 13 to 18 percent below replacement in 1974 and all succeeding years. In North Carolina, fertility is now below the nation's such that the state's total fertility rate (1.61) was 24 percent below replacement in 1984 when the U.S. provisional rate was 14 percent below replacement. Also, the total fertility rates of North Carolina whites and nonwhites are now **both** below replacement level at 1.53 and 1.80 respectively. In 1982, the white rate was 28 percent below and the nonwhite rate 9 percent below, while in the U.S., the white rate was 17 percent below but the nonwhite rate 7 percent **above** replacement. (2)

DISCUSSION

The several trends examined in this report evoke public health concern: **rising abortion utilization** because of the implied trend towards increasingly casual use of abortion as a means of birth control; **high teenage pregnancy rates** because of possible economic and emotional disadvantages to mother/child; and **delayed fertility** because of the risk of infant health consequences, specifically, excessive prematurity, newborn morbidity, and perinatal mortality among infants of older mothers, especially first-time older mothers. Although the present analysis is limited by the relatively small number of first births to older women, it strongly suggests that those events are deserving of intensive monitoring and study. The fertility and abortion measures examined in this study also suggest that recent declines in teenage fertility in North Carolina have been largely due to increased use of abortion by the pregnant teenager rather than to reduced levels of conception.

In the meantime, the potential for far-reaching consequences of an ongoing pattern of delayed and limited childbearing merits our attention. During the entire past decade, U.S. fertility has been well below replacement level. Hence, unless immigration policies are made less restrictive, the labor force could shrink as the elderly population grows, thus increasing to untenable levels the nation's dependency ratio (the ratio of persons in the dependent ages of under 15 and 65+ to persons in the economically productive ages of 15-64). In addition to this, America now faces the aging of its baby boom population, which ranges in age from about 20 to approaching 40 with the bulk 25-34 years old (12). As women baby boomers age beyond the high-fertility years, the number of births could drop even if fertility rates do not, and hence, America's future labor force could again lose strength.

If the foregoing factors portend an unsettling labor force situation nationwide, they do so all the more in North Carolina where fertility is much lower and growth among the elderly population much greater than in the nation as a whole. Moreover, compared to the U.S., lifetime birth expectations are lower in North Carolina, and the state's white women 18-34 appear more likely to have already completed their expected fertility. This means that the state's fertility levels are likely to remain disproportionately low, at least in the short term. Another reason to expect N.C.'s fertility to remain at an unusually low level is that, comparing labor force participation rates among the states, N.C. has one of the highest for females in general and THE HIGHEST for mothers of minor children; in 1980, two out of three of those mothers worked (13). No doubt, the need or desire to work contributes heavily to a woman's decisions about her childbearing.

Consistent with the above, information received just as this publication goes to press (14) indicates that, while United States and North Carolina fertility are expected to increase in the next few years as the "baby boom" cohorts move through their prime childbearing years, both white and nonwhite births are expected to peak around 1990. Meanwhile, if childbearing for women of all ages continues at current rates, the average white woman in North Carolina and in the United States will have 1.53 and 1.78 children respectively during her lifetime. The average nonwhite woman in North Carolina and the United States will have 1.90 and 2.33 children respectively. Thus, the state's fertility is expected to remain below that of the nation.

Meanwhile, recent growth in North Carolina's population reflects a national trend whereby Americans, in fairly large numbers, have packed up their belongings and moved to the South. Although much of this increase involves growth in the working-age population, no one knows how long this migration into North Carolina will continue or at what rate. Forecasters *expect*, however, that the state's population will continue to grow, though at a somewhat slower rate, to a projected 6.8-7.7 million by the year 2000. Moreover, expectations are that the population will continue to age: the percentage 65 and older is expected to grow from 10 percent in 1980 to 14 percent in 2000; the percentage of children and teenagers is expected to decline from 32 to 26; and only a slight increase is expected in the 20-64 age group, from 58 to 60 percent. Median age of the state's population is expected to increase by 4 years to 35.0 by 1995. Hence, in the presence of continued low fertility in North Carolina, public health and the state's other societal support systems may soon face sweeping changes in order to adapt. (14, 15)

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APPENDIX

TECHNICAL NOTES

LIVE BIRTHS, DEATHS, FETAL DEATHS, AND ABORTIONS

In this report, abortion counts include only *resident* events *occurring in North Carolina*. In other reports, abortion rates and fractions for the state may include abortions occurring in the state regardless of place of residence or abortions to N.C. residents regardless of place of occurrence. Beginning in 1981, the latter are possible through a voluntary interstate exchange program involving the states of North Carolina, South Carolina, Virginia, Georgia, and Tennessee. For live births, deaths, and fetal deaths, a formal interstate exchange program, coordinated by the National Center for Health Statistics, involves all 50 states and D.C. Thus, those events are for North Carolina residents, regardless of place of occurrence.

POPULATION BASES

The population bases used in this report represent July 1 estimates produced by the North Carolina Office of State Budget and Management. They are the latest estimates as of June 27, 1985.

SOURCES OF ERROR

In addition to errors in estimating population, the rates of this report may be subject to underreporting of events, especially abortions since a procedure called "menstrual extraction" performed in doctors' offices may actually be abortions. Users of this report should also be aware that abortion counts for population subgroups are subject to sampling error although, during each of the years studied here, reporting facilities provided detailed data for 92 to 99 percent of abortions performed. Missing data represent yet another source of error; for example, among 32,772 in-state resident abortion reports for 1984, 0.3% did not show age, 1.8% did not show race, and 2.8% did not show marital status of the abortee. In total, Tables 3 and 4 exclude 688 abortions reported for 1984 (2% of the total) because of missing values for age and/or race, and Table 5 excludes 1,298 abortions reported for 1984 (4% of the total) because of missing values for one or more of age, race, and marital status. By comparison, missing values are very infrequent among live births and fetal deaths.

TABLE 1
FERTILITY RATES, ABORTION RATES, AND ABORTION FRACTIONS
BY RACE
NORTH CAROLINA, 1978-1984

YEAR	FERTILITY RATES†			ABORTION RATES†			ABORTION FRACTIONS††		
	TOTAL	WHITE	NONWHITE	TOTAL	WHITE	NONWHITE	TOTAL	WHITE	NONWHITE
1978	61.3	55.0	80.3	18.6	15.5	26.5	231.3	218.9	245.0
1979	61.2	55.1	79.5	20.1	16.8	28.0	245.3	231.8	257.2
1980	60.4	54.8	77.0	21.6	17.9	31.1	261.1	244.5	284.5
1981	59.1	53.8	74.8	21.2	17.6	30.1	261.7	244.9	283.9
1982	59.9	54.5	75.4	20.8	17.7	28.2	256.2	244.0	269.3
1983	57.7	53.3	70.2	21.5	18.1	29.6	269.3	251.5	293.6
1984	58.1	54.3	69.0	22.2	18.1	32.0	274.2	248.7	314.7

† All events (any age) in numerator, females 15-44 in denominator.

†† All events (any age) in both numerator and denominator.

TABLE 2
FERTILITY RATES BY RACE AND AGE
NORTH CAROLINA, 1978-1984

WHITES	ALL AGES†	15-17	18-19	20-24	25-29	30-34	35-44
1978	55.0	29.7	75.0	98.4	93.9	45.6	7.4
1979	55.1	27.8	71.9	96.8	96.4	47.3	7.6
1980	54.8	26.8	69.9	97.7	96.6	46.7	7.3
1981	53.8	24.8	66.3	95.2	95.1	49.5	7.4
1982	54.5	25.7	68.8	95.4	96.1	51.3	8.1
1983	53.3	23.8	68.9	91.4	95.1	51.8	8.6
1984	54.3	24.3	69.2	93.3	95.2	55.3	9.5
NONWHITES							
1978	80.3	72.3	128.9	134.7	95.4	46.4	13.5
1979	79.5	67.2	125.1	131.2	96.4	49.9	12.6
1980	77.0	67.0	117.7	125.8	93.8	50.4	13.0
1981	74.8	63.6	118.1	123.4	92.2	50.3	12.5
1982	75.4	63.5	121.4	124.3	96.0	50.7	13.1
1983	70.2	60.3	117.6	118.5	87.1	48.2	11.6
1984	69.0	59.7	118.1	116.8	86.2	46.9	12.0

† Resident live births (any age) in numerator, females 15-44 in denominator.

TABLE 3
ABORTION RATES BY RACE AND AGE
NORTH CAROLINA, 1978-1984

WHITES	ALL AGES†	15-17	18-19	20-24	25-29	30-34	35-44
1978	15.5	21.3	39.8	27.3	13.5	7.1	3.1
1979	16.8	22.6	42.2	30.5	15.4	7.4	2.9
1980	17.9	23.8	44.2	33.2	16.8	7.9	2.9
1981	17.6	23.3	46.5	32.2	16.5	8.2	2.9
1982	17.7	24.4	43.7	33.2	17.4	8.5	3.0
1983	18.1	24.9	44.6	32.8	18.4	9.5	3.3
1984	18.1	25.6	45.9	33.1	18.8	9.6	3.3
NONWHITES							
1978	26.5	25.9	42.1	43.6	26.8	14.2	6.4
1979	28.0	27.3	45.7	45.3	27.1	16.5	5.9
1980	31.1	30.8	52.9	50.8	31.1	17.0	6.1
1981	30.1	28.6	51.3	49.1	31.7	18.4	6.0
1982	28.2	27.5	47.7	46.5	29.9	16.5	6.7
1983	29.6	31.3	54.2	49.6	30.5	16.6	5.8
1984	32.0	35.0	59.7	54.1	33.6	18.0	6.2

† Resident in-state abortions (any age) in numerator, females 15-44 in denominator.

TABLE 4
ABORTION FRACTIONS BY RACE AND AGE
NORTH CAROLINA, 1978-1984

WHITES	ALL AGES†	15-17	18-19	20-24	25-29	30-34	35-44
1978	218.9	414.5	344.4	215.8	125.1	134.3	290.4
1979	231.8	445.4	367.4	237.8	136.7	134.4	269.8
1980	244.5	468.8	385.6	252.1	147.4	144.4	282.2
1981	244.9	481.6	409.7	251.3	147.0	141.3	280.6
1982	244.0	484.0	386.3	256.2	152.7	141.6	268.2
1983	251.5	509.3	391.3	262.4	160.9	154.3	278.4
1984	248.7	510.1	396.6	260.7	164.3	146.3	257.6
NONWHITES							
1978	245.0	260.9	242.8	241.8	216.3	230.9	314.2
1979	257.2	285.6	264.3	254.3	216.9	245.0	311.2
1980	284.5	311.4	307.2	284.7	246.3	248.8	312.4
1981	283.9	306.1	300.0	282.2	253.3	264.2	318.6
1982	269.3	299.4	279.8	269.8	234.6	243.8	334.8
1983	293.6	338.5	313.2	292.4	257.3	252.3	327.6
1984	314.7	367.7	333.5	314.5	278.3	275.3	336.7

† Resident events in both numerator and denominator.

TABLE 5
ABORTION FRACTIONS BY MARITAL STATUS, RACE, AND AGE
NORTH CAROLINA, 1978-1984

MARRIED							
WHITES	ALL AGES†	15-17	18-19	20-24	25-29	30-34	35-44
1978	91.2	51.8	79.9	89.4	75.8	95.5	246.3
1979	91.1	61.4	81.2	92.9	76.8	90.8	212.6
1980	94.3	58.5	87.3	97.0	80.0	92.5	220.1
1981	92.3	60.8	89.6	94.8	77.6	90.1	203.7
1982	90.2	60.4	79.3	94.7	76.1	84.4	194.5
1983	90.7	59.9	76.4	92.3	79.7	88.4	184.1
1984	90.6	57.0	88.0	95.0	78.7	83.2	168.3
MARRIED							
NONWHITES							
1978	146.2	65.8	83.7	130.8	145.6	172.8	279.6
1979	142.0	50.6	91.1	124.6	136.3	178.8	262.6
1980	153.5	52.6	89.9	137.0	153.8	179.2	264.2
1981	153.2	54.4	93.2	135.1	152.8	176.8	262.4
1982	143.3	75.0	104.6	122.9	136.7	165.8	258.8
1983	151.5	95.2	97.1	137.6	148.6	164.9	247.7
1984	165.9	98.6	116.0	156.5	161.2	171.8	256.7
UNMARRIED							
WHITES							
1978	766.1	708.5	773.8	788.3	791.6	786.6	781.5
1979	783.3	743.0	779.6	801.8	819.1	765.2	785.0
1980	776.7	736.7	771.8	794.3	806.4	779.8	769.7
1981	772.5	738.4	786.5	774.4	785.1	780.1	801.1
1982	760.2	723.0	754.0	767.8	781.8	790.7	810.7
1983	766.8	731.4	764.9	770.7	774.6	792.1	843.2
1984	746.9	718.9	738.7	746.1	773.4	778.4	788.3
UNMARRIED							
NONWHITES							
1978	340.6	276.6	298.9	359.6	418.4	454.7	446.4
1979	358.7	304.0	313.3	375.5	411.2	458.5	485.1
1980	391.0	325.7	364.0	405.3	442.7	456.7	483.4
1981	382.7	315.1	343.4	394.1	443.6	492.6	456.4
1982	364.2	308.0	316.3	377.5	402.6	427.9	524.1
1983	390.1	344.6	354.3	391.9	425.5	441.9	507.1
1984	408.3	372.2	369.6	404.5	441.3	480.7	515.5

† All resident events in both numerator and denominator.

TABLE 6
FERTILITY AMONG TOTAL WOMEN AND WOMEN 30
AND OLDER BY RACE AND BIRTH ORDER
NORTH CAROLINA, 1978 AND 1984

	All Ages				Ages 30+			
	First Birth		Nonfirst Birth		First Birth		Nonfirst Birth	
	No.	Rate	No.	Rate	No.	Rate	No.	Rate
WHITES								
1978	23,159	22.9	31,922	31.6	1,472	3.3	8,242	18.6
1984	25,229	23.1	34,150	31.2	2,828	5.5	10,571	20.7
Percent Change	8.9	0.9	7.0	-1.3	92.1	66.7	28.3	11.3
NONWHITES								
1978	9,662	28.9	17,099	51.1	247	2.1	2,992	24.9
1984	9,588	24.9	16,990	44.1	475	3.0	3,710	23.8
Percent Change	-0.8	-13.8	-0.6	-13.7	92.3	42.9	24.0	-4.4
TOTAL								
1978	32,821	24.4	49,021	36.5	1,719	3.1	11,234	20.0
1984	34,817	23.5	51,150	34.6	3,303	5.0	14,281	21.5
Percent Change	6.1	-3.7	4.3	-5.2	92.1	61.3	27.1	7.5

TABLE 7
PERCENTAGE OF MOTHERS HAVING STATED
YEARS OF EDUCATION BY RACE, AGE, AND BIRTH ORDER†
NORTH CAROLINA, 1984

	1-3 YEARS OF COLLEGE		4+ YEARS OF COLLEGE	
	First Birth	Nonfirst Birth	First Birth	Nonfirst Birth
WHITES				
18-24	19.1	10.9	5.0	1.2
25-29	26.8	25.4	39.3	17.8
30+	23.9	23.7	52.9	38.1
NONWHITES				
18-24	19.9	10.6	3.3	1.1
25-29	27.7	19.8	31.3	9.3
30+	21.7	18.2	42.9	17.3

† Denominators are total births (all education levels) specific for race, age, and birth order.

TABLE 8
PERCENTAGE OF MOTHERS HAVING INADEQUATE
PRENATAL CARE BY RACE, AGE, AND BIRTH ORDER†
NORTH CAROLINA, 1984

WHITES	FIRST BIRTH	NONFIRST BIRTH
<18	11.0	14.6
18-24	3.5	6.7
25-29	0.8	2.4
30+	1.2	1.8
NONWHITES		
<18	15.0	27.3
18-24	7.9	15.8
25-29	2.9	8.4
30+	2.5	6.1

† Based on the Kessner Index which takes into account month of first visit, number of visits, and gestational age at delivery. Denominators are total births (all prenatal care levels) specific for race, age, and birth order.

TABLE 9
PERCENTAGE OF NEWBORNS HAVING LOW BIRTHWEIGHT
BY RACE, MOTHER'S AGE, AND BIRTH ORDER†
NORTH CAROLINA, 1984

	<1500 GMS.		1500-2499 GMS.		<2500 GMS.	
	First Birth	Nonfirst Birth	First Birth	Nonfirst Birth	First Birth	Nonfirst Birth
WHITES						
<18	1.5	3.4	7.1	9.3	8.6	12.7
18-24	1.0	1.0	5.1	5.8	6.1	6.8
25-29	1.1	0.9	4.2	4.5	5.3	5.4
30+	0.8	0.9	6.3**	4.8	7.1**	5.7
NONWHITES						
<18	2.6	5.3	10.2	13.9	12.8	19.2
18-24	2.1	2.5	8.5	9.8	10.6	12.3
25-29	2.4	2.6	10.0*	8.2	12.4	10.8
30+	3.2	2.8	9.5	8.5	12.6	11.3

† Denominators are total births (all weights) specific for race, age, and birth order.

* Significantly higher than corresponding percentage for nonfirst births, $p < .05$.

** Significantly higher than corresponding percentage for nonfirst births, $p < .01$.

TABLE 10

**PERCENTAGE OF NEWBORNS HAVING LOW 5-MINUTE APGAR SCORE
BY RACE, MOTHER'S AGE, AND BIRTH ORDER†
NORTH CAROLINA, 1984**

	0-3		4-7		<8	
	First Birth	Nonfirst Birth	First Birth	Nonfirst Birth	First Birth	Nonfirst Birth
WHITES						
<18	0.7	1.6	4.1	3.7	4.8	5.3
18-24	0.6	0.6	3.0	2.8	3.6	3.3
25-29	0.5	0.4	2.7*	2.1	3.3**	2.5
30+	0.2	0.6	3.0**	2.1	3.3	2.6
NONWHITES						
<18	1.1	0.9	4.9	6.3	6.0	7.2
18-24	1.1	1.1	4.8	4.3	5.9	5.4
25-29	1.2	0.9	4.7	3.9	6.0	4.8
30+	1.7	1.1	5.3	4.2	6.9	5.3

† Denominators are total births (all Apgar scores) specific for race, age, and birth order.

* Significantly higher than corresponding percentage for nonfirst births, $p < .05$.

** Significantly higher than corresponding percentage for nonfirst births, $p < .01$.

TABLE 11

**FETAL AND NEONATAL DEATH RATES
BY RACE, MATERNAL AGE, AND BIRTH ORDER
NORTH CAROLINA, 1979-83**

	Fetal Rates ¹		Neonatal Rates ²	
	First Birth	Nonfirst Birth	First Birth	Nonfirst Birth
WHITES				
<18	10.7	10.0 ³	11.8	21.8
8-24	8.4	8.5	6.6	8.7
25-29	7.0**	7.4*	5.7	6.6
30+	9.1	8.6	7.0	7.3
NONWHITES				
<18	15.6	19.0	12.9*	22.1
18-24	13.7**	12.5**	11.2**	14.9
25-29	15.0	13.3**	13.2*	14.4
30+	22.3	17.7	22.3	13.6

¹ Fetal deaths (stillbirths) per 1,000 deliveries (live births plus fetal deaths).

² Deaths under 28 days per 1,000 live births.

³ Based on only 18 deaths. All other rates based on at least 40 deaths.

* Significantly lower than rate for mothers 30+, $p < .05$.

** Significantly lower than rate for mothers 30+, $p < .01$.

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